ACQUISITION SYSTEMS MANAGEMENT CURRICULUM DEVELOPMENT

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Introduction

The success of our Armed Forces in ending the Cold War and winning the Gulf War with new technological advances has changed the face of combat. Our forces now rely on sensors, computers, and other information technology (IT) tools to provide commanders with a clearer, more accurate picture of the battlefield. IT provides the ability to digitally command, locate, position, and move friendly forces. In general, computer-enhanced systems have greatly improved information processing and dissemination. Thus, there is a greater need for expanding this technology to other applicable force components and systems.

Our military leadership recognizes the need to seamlessly integrate these technology systems into a changing force structure and operational perspective. As such, interoperability, training, education, research and development, production, testing, operation, and support issues must be factored into the entire life-cycle development of a system. This requires the ability to establish effective acquisition procedures and processes for developing systems that can be integrated into and operated by each military Service. This will maximize system capabilities and increase strategic, operational, and tactical force performance.

Integrating acquisition processes within our fighting forces is a cultural shift requiring a transformation throughout our military institutions. For example, the Department of Systems Engineering at the U.S. Military Academy (USMA) will contribute to the cultural shift by educating officers in acquisition systems management. This article is devoted to explaining our vision for this course of instruction.

Course Justification

The purpose of the acquisition systems management course is to provide officers with a logical framework from which to understand the acquisition process. Additionally, we will educate officers so they realize that collaboration, in all its forms, is essential to an integrated and digitally dependent force.

Information technology provides the ability to digitally command, locate, position, and move friendly forces.

Analyses of Gulf War processes and technologies, Force XXI experimentation, and Joint Vision 2010 provide evidence of the benefits of modeling and simulation (M&S) and other information and analysis technologies. The capabilities of M&S must be merged across the advanced concepts and requirements; training, exercises, and military operations; and research, development, and acquisition domains. This will go a long way in transforming the force in an efficient and systematic manner. However, this transformation requires a cultural change in the way the Army thinks and implements its acquisition processes.

One element necessary to achieve this cultural change is education, which—via an acquisition systems management course—will target officers at the outset of their careers. Furthermore, this course could potentially be expanded, refined, updated, and presented at critical stages throughout an officer's career. The course will exploit and teach concepts supported by the Simulation Based Acquisition and Simulation and Modeling for Acquisition, Requirements and Training efforts. These concepts include the following:

• Encouraging cross-domain collaboration such as sharing of data;

results; and operational, procedural, and process information;

• Fostering effective and efficient stewardship of resources;

• Using M&S tools and techniques designed to identify and help resolve system life-cycle issues;

• Promoting horizontal technology integration (HTI) such as hardware systems (sensors, sites, weapons, etc.), IT, and software; and

• Developing an environment of innovation, knowledge creation, information sharing, and trust.

Moreover, for the acquisition systems management course to be relevant, it must be founded on universal concepts related to acquisition management and business procurement. Ultimately, the curriculum for the acquisition systems management course will focus on providing a holistic and systematic understanding of the acquisition process. The Department of Systems Engineering will accomplish this by institutionalizing overarching acquisition concepts and principles in its courses. Thus far, the following concepts have been identified as key and essential acquisition education principles:

• *Systems Theory.* Acquisition management is the process used to produce systems. Thus, the developed methodology uses a systems perspective to evaluate and manage acquisition projects. Systems theory will form the logical foundation for providing the requisite understanding and tools to develop strategy for managing and leading large-scale complex acquisition projects.

• *Program And Project Management.* Understanding and applying the fundamental tools and techniques of program and project management is a clear requirement. The course will teach program management philosophies to provide cadets with the principles, concepts, and methods necessary to manage complex programs and projects from a systems perspective. Likewise, the course will allow cadets to conceptually design, plan, and evaluate real-world acquisition projects. This will help in developing their ability to assess and resolve human, technical, and administrative acquisition issues in an acquisition systems management project.

• *Acquisition Life Cycle.* The course will take the many life-cycle processes and synthesize them into a coherent and integrated methodology.

There are four major phases in the acquisition life-cycle process. The first phase is the need statement or requirement. The need is the rough identification of a problem that requires a solution. The second phase is requirement generation and problem restatement. In this phase, the requirement is developed, evaluated, and refined. The feasibility of the requirement is examined, current and future capabilities to meet the requirement are considered, concept of exploration is planned, and the problem is restated to fit in the realm of the possible.

Concept exploration is the third phase, which compares competing alternatives with established criteria, ultimately resulting in a selection of a particular alternative. The fourth phase is application of the alternative. In this phase, the alternative is used for a period of time and then retired.

As the systems acquisition life cycle progresses, mature technology and innovative ideas may emerge for use in other acquisition projects or programs. These ideas and technologies often result in hardware, software, or process and procedure solutions.

• *Innovation And Core Rigidities.* Innovation is an important aspect of all technology-based organizations and must be encouraged.

Core rigidities refer to the impediments and intransigence within an organization that must be overcome to unbridle learning and knowledge creation. Learning new skills that may be vastly different from past skills sometimes causes a sense of uneasiness and uncertainty. Also, learning new roles and behaviors can be difficult, intimidating, and a barrier to change. Ultimately, managers need to unlearn outmoded ways of thinking and use new approaches to achieve innovation and knowledge creation. The acquisition systems management course will explore methods to mitigate and manage organizational rigidities while enabling innovation and a knowledge-creating atmosphere.

Conclusion

The learning environment for an acquisition systems management course at the USMA will be based on use of concepts such as systems theory, HTI, project management, M&S, the acquisition life-cycle process, and innovation and core rigidities. This approach will ultimately contribute to developing leaders who are intellectually capable and professionally motivated to meet the challenges of the Army's future acquisition process.

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